

REMARKS

In response to the Office actions identified above, please accept the following remarks.

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1. Corrections of the drawings:

Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Response:

Figure 4 has been corrected as per the Examiner's instructions.

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2. Claim objections

Claims 1-2 are objected to because of the following informalities: In claim 1, line 1, the phrase "An double- triggered" should read "A double-triggered". Appropriate correction is required.

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Response:

Claims 1-2 have been amended as specified in the above AMENDMENTS TO THE CLAIMS section, as per the Examiner's instructions.

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3. Claims 1-2 are rejected under 35 U.S.C 102(e) as being anticipated by Su et al. (6,493,199)

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Su et al. teach in figure 6 and related text a double-triggered silicon controlled rectifier (DT-SCR), the

DT-SCR formed on a P-type substrate 602, the DT-SCR comprising:
an N-well 604 in the P-type substrate, a first N+ diffusion
region 612 and a first P+ diffusion region 610 in the P-type
substrate for use as a cathode of the DT-SCR; a second N+
5 diffusion region 608 and a second P+ diffusion region 606 in
the N-well for use as an anode of the DT-SCR, the second P
diffusion region, the N-well, the P-type substrate and the
first N diffusion region forming a lateral silicon controlled
rectifier (SCR); a first trigger node 618 (of the zener diode)
10 for accepting a first trigger current, and a second trigger
node 620b (of the zener diode) for an out-flowing second
trigger current, wherein when the first trigger current flows
into the DT-SCR through the first trigger node, or when the
second trigger current flows out from the DT-SCR through the
15 second trigger node, the lateral SCR is triggered into a latch
stable, wherein the first trigger node of the DT-SCR is a third
P diffusion region 618, the third P diffusion region disposed
in the P-type substrate between the first N diffusion region
and the second P diffusion region, and the second trigger node
20 is a third N diffusion region 620b, the third N region disposed
in the N-well between the first N diffusion region and the
second P region.

Response:

25 Applicant intends to point out the difference between the
amended claim 1 of the present application and Su's disclosure.
The amended claim 1 of the present application is repeated
in the following:

30 " A double-triggered silicon controlled rectifier
(DT_SCR), the DT_SCR formed on a P-type substrate, the
DT_SCR comprising:

an N-well in the P-type substrate;
a first N⁺ diffusion region and a first P⁺ diffusion region in the P-type substrate for use as a cathode of the DT_SCR;
5 a second N⁺ diffusion region and a second P⁺ diffusion region in the N-well for use as an anode of the DT_SCR, the second P⁺ diffusion region, the N-well, the P-type substrate and the first N⁺ diffusion region forming a lateral silicon
10 controlled rectifier (SCR);
a first trigger node for accepting a first trigger current; and
a second trigger node for an out-flowing second trigger current;
15 wherein when the first trigger current flows into the DT_SCR through the first trigger node, or when the second trigger current flows out from the DT_SCR through the second trigger node, the lateral SCR is triggered into a latch state."

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As disclosed in the amended claim 1 the present application, there are two obvious differences between Su's disclosure and the present application. In the present application, the DT-SCR comprises both an N⁺
25 **diffusion trigger node 708 in an N-well 702, and a P⁺ diffusion trigger node 709 in a P-type substrate 701** in the DT-SCR device 700 structure, as fig. 15 shown. With both a trigger current into the P-type substrate 701, and a trigger current out from the N-well 702, the DT_SCR 700 has **a faster turn-on speed to**
30 **trigger into its latch state.**

According to Su's disclosure, the SCR is reality

belonged to P-type SCR, shown in Fig. 6. The vertical zener junction 617 comprises a p+ diffusion region and two n+ diffusion region, wherein the p+ diffusion region is sandwiched between two n+ regions. The vertical zener junction 617 spans the n-well 604 and the p-substrate 602, in order to avoid that the p+ region 418 and the deeper n+ region 420 of the zener junction 417 limits its current handing capability, shown in Fig. 4.

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From the above discussion, the Applicant believes that the amended claim 1 of the present application is absolutely different from the Su's disclosure. Reconsideration of the rejection over claim 1 is hereby requested.

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Claims 2 is dependent upon the amended claim 1, it should be allowed if the amended claim 1 is allowed. Reconsideration of claims 2 is therefore requested.

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Sincerely yours,



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- 10 Note: Please leave a message in my voice mail if you need to talk to me.
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time period for telephone conversation is 7 AM (or earlier) - 11 AM, D.C.
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